SHORT COMMUNICATIONS

TEREBRATULIDE AFFINITY OF THE BRACHIOPOD *SPIRIFERA MINIMA* MOORE

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ABSTRACT. Investigation of seventy-three recently rediscovered specimens of *Spiriferina*? *minima* (Moore) enables resolution of the problem of possible synonymy with *Nannirhynchia longirostra* Baker, 1971. Comparison of the cardinal areas and delthyria of the two species enables the distinction between *S.*? *minima* and *N. longirostra* to be clearly demonstrated. Further, the characters of the shell show that *S.*? *minima* (Moore) is a juvenile terebratulidine assignable to *Terebratula* and that *N. longirostra* Baker is validly designated.

THE micromorphic *Spiriferina*? *minima* has periodically attracted the attention of palaeontologists (Davidson 1876; Buckman 1918; Ager 1967; Baker 1971) since the first record (Moore 1861) of its occurrence in the Inferior Oolite of Dundry Hill near Bristol. Unfortunately, the precise location from which Moore obtained his material is not known. All investigation of the species has been hampered by the absence of the holotype and the apparent lack of any syntypes or topotypes. It is particularly gratifying, therefore, that a part of the Charles Moore Collection, recently rediscovered in the Somerset County Museum, Taunton Castle, should include a box containing seventy-three specimens labelled, '4462. *Spirifera minima*, Dundry'. No precise horizon is given but the adherent matrix is identical with that of the accompanying thecidellinids of undisputed Bajocian age. The material was presented to the museum in 1905 by the Revd. H. H. Winwood, who had been in charge of the Moore Collection at Bath following Moore's death in 1881. The part of the collection presented to the Taunton Museum apparently consisted of specimens which were kept at Moore's house and, therefore, not sold with the main collection housed in the Bath Literary and Scientific Institution. It is probable that Moore's widow kept them and later gave them to Winwood. This would account for the absence of *S.*? *minima* from the Bath Museum when earlier workers wished to refer to it.

Davidson (1876, p. 103) tentatively proposed the name *Spiriferina*? for *Spirifera* Moore, 1861, but did not formally designate the genus, observing 'I know so little of this minute fossil I cannot venture to express any opinion with respect to the genus to which it belongs'. As *S.*? *minima* is certainly a juvenile terebratulidine and as there is, at present, no way of assigning the species to an adult genus, the authors would prefer formal designation to remain in abeyance. However, in view of the considerable time which has elapsed since Moore's description, and in view of the recurring interest in *S.*? *minima*, it is considered that Moore's original diagnosis merits reproduction and emendation.

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'*Terebratula*' *minima* (Moore)

Text-fig. 1A–D; text-fig. 2

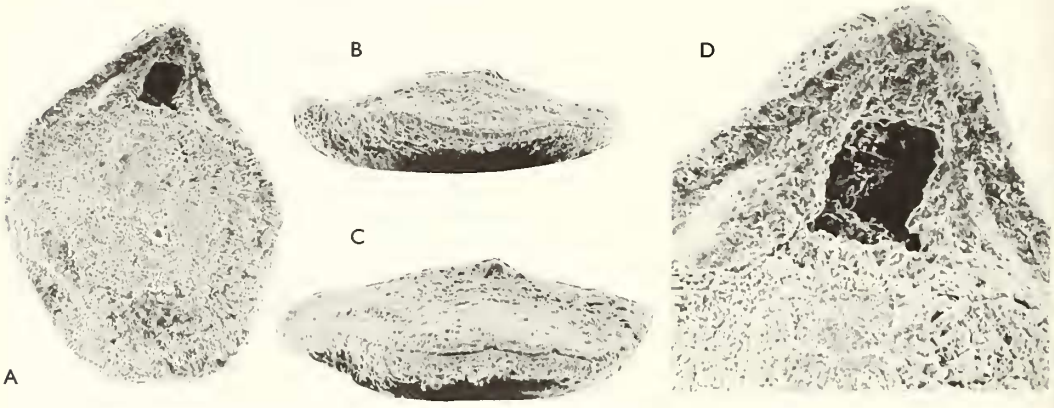
1861 *Spirifera minima* Moore, p. 190, pl. ii, figs. 19, 20.
1876 *Spiriferina*? *minima* (Moore) Davidson, p. 103, pl. XI, fig. 17.
1918 *Nannirhynchia*? (*Spiriferina*?) *minima* (Moore) Buckman, p. 68.
1967 *Nannirhynchia*? *minima* (Moore), Ager, p. 137.

Original diagnosis. Shell microscopic, often one sided or asymmetrical, slightly rugose; valves moderately convex; deltidium triangular; area broad and flattened; hinge line broad; front of shell rounded. In some specimens the shell presents a uniformly flattened surface, whilst in the majority the outer surface of the smaller valve possesses mesial folds and in the larger valve a central sinus (Moore).

Emended diagnosis. Minute, asymmetric '*Terebratula*'; planoconvex to ventribiconvex, slightly longer than wide, characterized by low, poorly defined mesial folds which fail to deflect the commissure. Apex of the delthyrium closed by a rudimentary pedicle collar. Shell endopunctate.

Lectotype. There is very little evidence of a type specimen or specimens having been used by Moore in his original description of the species in 1861. It is likely that, adopting the procedure of many palaeontologists of the time, he established the species on knowledge obtained from several examples which he considered to be typical or characteristic forms. This belief is borne out by the comments 'In some specimens' and 'whilst in the majority' in Moore's original diagnosis. In addition, figs. 19 and 20 (Moore 1861, pl. ii) are quite clearly prepared from different specimens. His locality and stratigraphical details were vague.

Since the only known specimens are those in the Somerset County Museum, No. 4462, the specimen figured in this paper (text-fig. 1A–D) is here proposed as a lectotype.



TEXT-FIG. 1. A–D. Stereoscan photomicrographs of the lectotype (No. 4462A) of '*Terebratula*' *minima* (Moore), showing the general morphology. Specimen coated with evaporated aluminium before photography. A, brachial view showing the characteristic lateral deflection of the beak, ×35. B, lateral view, ×35. C, anterior view, ×50. Specimen tilted forwards slightly, to show the poorly defined mesial folds. D, enlarged view of the umbonal region, showing the rudimentary pedicle collar closing the apex of the delthyrium, ×85.

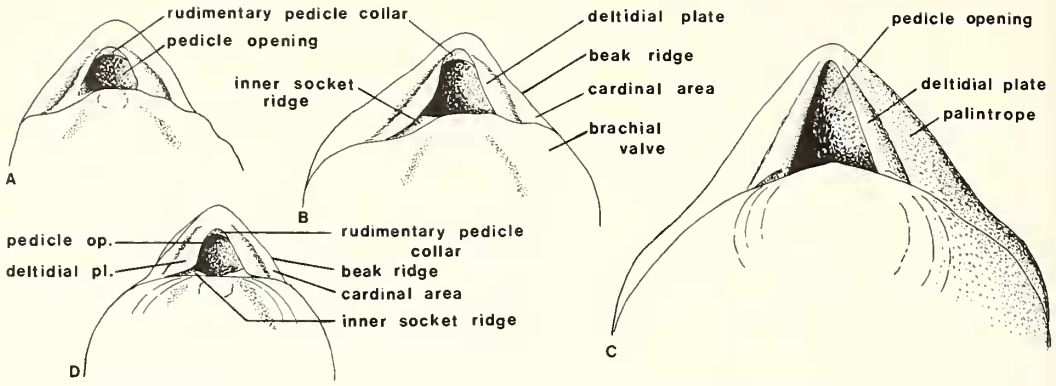
Dimensions of lectotype. Length 1·2 mm, width 1·0 mm, thickness 0·4 mm.

Distribution. Uncertain. Moore (1861, p. 190) states that the species is not uncommon in the Inferior Oolite of Dundry. The Somerset County Museum specimens are simply labelled Dundry and it is presumed that they are topotypes. They are associated with moorellinids of Murchisonae Zone age.

Description. External characters. A juvenile terebratulidine up to about 1·8 mm long, 1·6 mm wide, and 0·4 mm thick, often symmetrical but more commonly with a marked lateral deflection of the beak. Typically planoconvex or ventribiconvex but biconvex forms are seen. A characteristic feature is the flattening of the cardinal area to form an interarea *sensu lato*, bounded by very sharp beak ridges. Small disjunct deltidial plates are present, with their inner edges elevated above the plane of the cardinal area. Specimens, in which the structure is not obscured by matrix, show a rudimentary pedicle collar closing the apex of the delthyrium, undoubtedly representing the triagular 'deltidium' noted by both Moore (1861) and Davidson (1876).

Internal characters. Apart from immature hinge teeth and sockets, no other internal characters have been noted.

Discussion. As noted earlier, attempts to study the species have been hampered by the unavailability of a holotype. An important feature overlooked by Moore but presumably noted by Davidson (hence *Spiriferina*?) is the endopunctate shell. Although even Davidson (1876, p. 103) had to rely on drawing 'one of Moore's specimens'. It appears that by 1918 even the topotypes had been mislaid or Buckman (1918, p. 68) would surely have been able to differentiate between '*Terebratula*' *minima* and *Nannirhynchia subpygmaea* Buckman (ex Walker MS.) particularly as weathered specimens of '*T.*' *minima* are so obviously endopunctate. In the absence of actual specimens for study, subsequent workers (Ager 1967; Baker 1971) have also been misled by the superficial resemblance between '*T.*' *minima* and *Nannirhynchia* Buckman. Of particular interest was the possibility of synonymy of '*T.*' *minima* with *N. longirostra* Baker, 1971. The recently discovered specimens show that '*T.*' *minima* is much more dorso-ventrally compressed than *N. longirostra*. Diagnostic differences are seen in the cardinal areas and delthyria of the two species and in the observation that '*T.*' *minima* is endopunctate whereas *N. longirostra* is impunctate. The flat cardinal area and sharp beak ridges (text-fig. 2A, B) of '*T.*' *minima* are in sharp contrast with the rounded beak ridges and well-defined palintropes (text-fig. 2C) of *N. longirostra*. A pedicle collar is characteristic of both species but in *N. longirostra* this is an almost sessile structure (Baker 1971, pl. 135, fig. 10; pl. 136, fig. 1) not usually visible externally. A further minor difference is that in the brachial valve of '*T.*' *minima*, a shallow sulcus develops on either side of the umbonal region but in *N. longirostra* the brachial valve is regularly convex in this region. Demonstration of the distinction between '*T.*' *minima* and *N. longirostra* still leaves the affinity of '*T.*' *minima* for consideration. '*T.*' *minima* displays all the characters which are typical of juvenile cancellothyridids. If the cardinal area and delthyrial characters are compared with an early juvenile cancellothyridid aff. *Plectothyris* (text-fig. 2D) from a different locality (Baker 1971, p. 696) they are found to correspond in almost every detail, even to the rudimentary pedicle collar. The closeness of the



TEXT-FIG. 2. Detail of the morphology of the posterior portion of the shells of four specimens investigated. All ×25 magnification. A, B, small, A, and larger, B, specimens of '*Terebratula*' *minima* (Moore). C, *Nannirhynchia longirostra*, holotype (Brit. Mus. BB.45820). D, early juvenile terebratulidine aff. *Plectothyris*.

resemblance must be genetic rather than coincidental and the conclusion drawn from the study of the newly available material must be, therefore, that *S.? minima* (Moore) is a juvenile of an undetermined terebratulidine brachiopod assignable to '*Terebratula*'.

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REFERENCES

AGER, D. V. 1967. The British Liassic Rhynchonellidae, Part IV. *Palaeontogr. Soc.* (Monogr.), London, **121**, 137–172.

BAKER, P. G. 1971. A new micromorphic rhynchonellide brachiopod from the Middle Jurassic of England. *Palaeontology*, **14**, 696–703.

BUCKMAN, S. S. 1917 (1918). The Brachiopoda of the Namyau Beds, Northern Shan States, Burma. *Palaeont. Indica*, new ser. **3**, 299 pp.

DAVIDSON, T. 1876. Supplement to the British Jurassic and Triassic Brachiopoda, British Fossil Brachiopoda, pt. 4, 103, Suppl. Pl. 11. *Palaeontogr. Soc.* (Monogr.), London.

MOORE, C. 1861. On new Brachiopoda and the development of the loop in *Terebratella*. *Geologist*, **4**, 190–194.

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